PACKAGING ENCYCLOPEDIA

1987

Contains Over 100 Technical Articles
The Year's Best Packages
New Technical Developments
Outlook For Materials
Free Literature
Index To Packaging Articles

PACKAGING ENCYCLOPEDIA

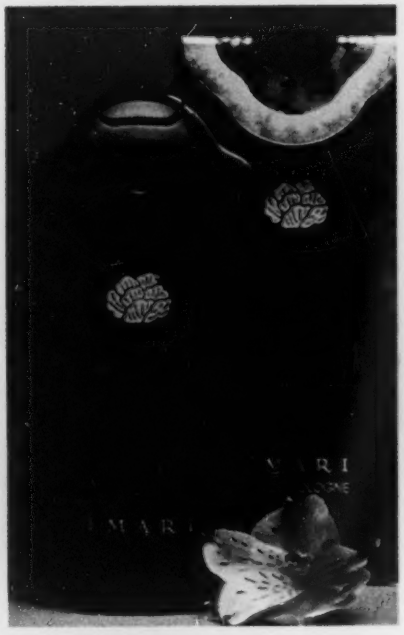
The 1987 Packaging Encyclopedia is designed to provide ready access to a wide range of information on packaging.

In addition to about 100 technical articles on packaging materials, methods and equipment, there is a look at the past year's most exciting packages and technological developments and a look at what's ahead for various container categories.

The basic reference articles are divided into four separate sections: Materials, Containers & Components, Industrial & Shipping Supplies and Machinery. Within each of these groupings, subjects are arranged alphabetically.

In addition, there is a Reference Guide that contains material on testing of packages, containers and packaging materials and the legal aspects of packaging. There are also two special product literature sections.

The book serves a dual purpose. It is an indispensable reference source for packaging professionals. It also serves as a comprehensive training tool for those preparing to take on packaging responsibilities.



PACKAGING YEARBOOK

8 The Year's Most Exciting Packages
14 Year's Technical Accomplishments Promise More Gains
18 Outlook for Rigid Containers
22 Outlook for Paperboard and Corrugated
26 Index to PACKAGING's 1986 Articles

PACKAGING ENCYCLOPEDIA

MATERIALS

33 Adhesives, Cold WaterBorne
34 Adhesives, Hot-Melt
35 Adhesives, Properties Chart
36 Co-Extrusions
38 Films, Cellophane
38 Films, Metallized
39 Films, Netting, Plastic
39 Films, Nylon
40 Films, Polycarbonate
40 Films, Polyester
43 Films, Polyethylene, Low- and High-Density
44 Films, Polyethylene, Linear Low-Density
46 Films, Polypropylene, Oriented
49 Films, Polypropylene, Non-Oriented
50 Films, Polyvinyl Chloride
53 Films, Polyvinylidene Chloride (Saran)
53 Films, Shrink
54 Films, Stretch
56 Films, Properties Chart
60 Flexible Films, Printing Techniques
63 Foil, Aluminum
64 Laminations
66 Paper and Paperboard
70 Polymers for Packaging, EVOH
71 Paperboard Properties Chart
76 Polymers, Properties Chart

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LITERATURE

80 Materials
220 Machinery

CONTAINERS AND COMPONENTS

89 Aerosols
91 Aluminum Foil
93 Aseptic Packages, Paperboard-Based
94 Aseptic Packages, Plastic-Based
94 Bag-In-Box
95 Bags, Paper
98 Bottles, Plastic
100 Bottles, Plastic Properties Chart
101 Bottles, Plastic, Co-Extruded, Multi-Layer, High-Barrier
102 Boxes, Plastic
102 Cans, Composite
103 Cans, Metal
106 Cans, Paperboard, Self-Manufacture
107 Carded Packages, Blister
108 Carded Packages, Skin
109 Cartons, Folding
110 Closures, Bottles and Jars
111 Closures, Dispensing, and Systems
113 Closures, Liners and Seals
115 Closures, Plastic Bags
115 Containers, Glass
116 Cups and Tubs, Paper/Plastic
116 Labels
117 Labels, Pressure-Sensitive
118 Pouches, Form-Fill-Seal
120 Thermoformed Packages
122 Trays, Ovenable, Paperboard
122 Trays, Ovenable, Plastic
124 Tubes, Collapsible/Squeeze
126 Vacuum and Gas Packages

INDUSTRIAL AND SHIPPING SUPPLIES

129 Bags, Bulk
130 Boxes, Bulk Container
133 Boxes, Corrugated and Fibre
135 Cushioning
137 Drums, Fibre
138 Drums and Pails, Metal
139 Drums, Plastic
140 Sacks, Shipping, Paper
142 Sacks, Shipping, Plastic
143 Strapping
146 Tape, Gummed
148 Tape, Pressure-Sensitive

MACHINERY

151 Adhesive, Applicating, Hot-Melt
152 Aerosol Packaging
153 Bar Code Scanning
154 Blow-Molding, Container
156 Capping
162 Cartoning
166 Case Forming, Packing, Closing
167 Checkweighing
168 Cleaning, Bottle, Air
171 Cleaning, Bottle, Water Rinse
172 Filling, Dry Products
178 Filling, Liquid Products
185 Form-Fill-Seal
188 Imprinting, Contact
188 Imprinting, Non-Contact
191 Labeling, Glue and Thermoplastic
194 Labeling, Pressure-Sensitive
196 Netweighing
198 Package Handling
199 Palletizing and Depalletizing
200 Sealing
207 Tube Filling, Closing
209 Wrapping, Horizontal
216 Wrapping, Shrink and Stretch

REFERENCE GUIDE

218 Pack Mart
227 Legal Aspects of Packaging
234 ABC's of Packaging
236 Standardized Packaging Tests

242 Classified Ads
246 Advertisers Index

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THE OUTLOOK FOR RIGID CONTAINERS

In 1986 rigid containers—glass containers, metal cans and plastic bottles—continued in the modest growth pattern that has prevailed since 1982. Indications are that this trend will continue.

There was growth in all three categories. In one case, glass containers, growth ran counter to an early-1986 projection: In the 1986 edition of the U.S. Department of Commerce's annual U.S. Industrial Outlook, Richard Blassey, industry analyst in the Department's Office of Basic Industries, predicted that 1986 glass container shipments would be down from 1985. But the Department's recently-released report for the first 10 months of 1986 showed glass containers up substantially over the previous year—243,359,000 gross units vs. 233,945,000 for 1985.

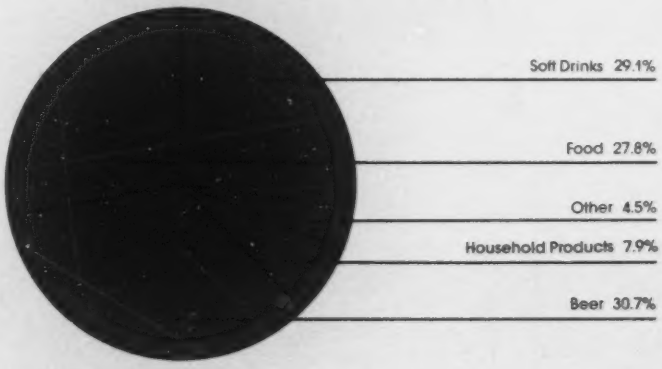
This development suggests that Blassey's forecast for glass containers through 1990—average annual declines of 0.5 per cent—needs revision. "Glass is on the upswing," said Howard Balogh of the Glass Packaging Institute.

New ideas for glass

While PET continues to cut into glass' clear-container territory, the makers of glass containers are not conceding the food and beverage packaging market to anyone. This is indicated by the activities of International Partners in Glass Research, a consortium of glass containers manufacturers, which is supporting a dozen R&D projects aimed at dealing with glass' main problems:breakability and weight.

Among the ideas developed

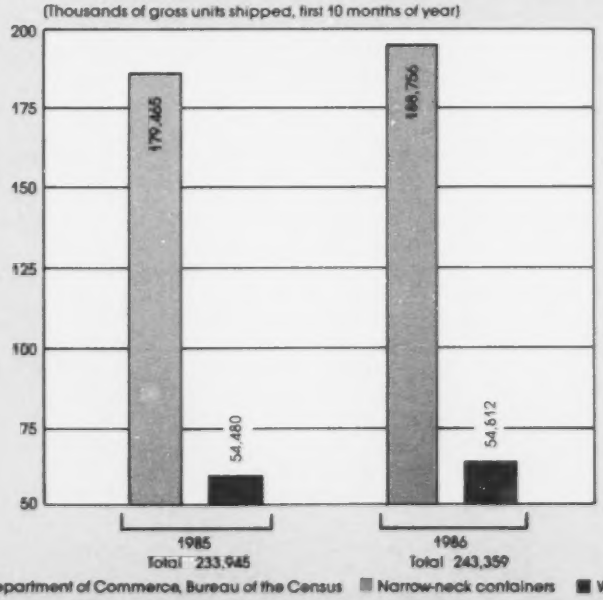
DISTRIBUTION OF RIGID CONTAINERS, END USE MARKETS—1986



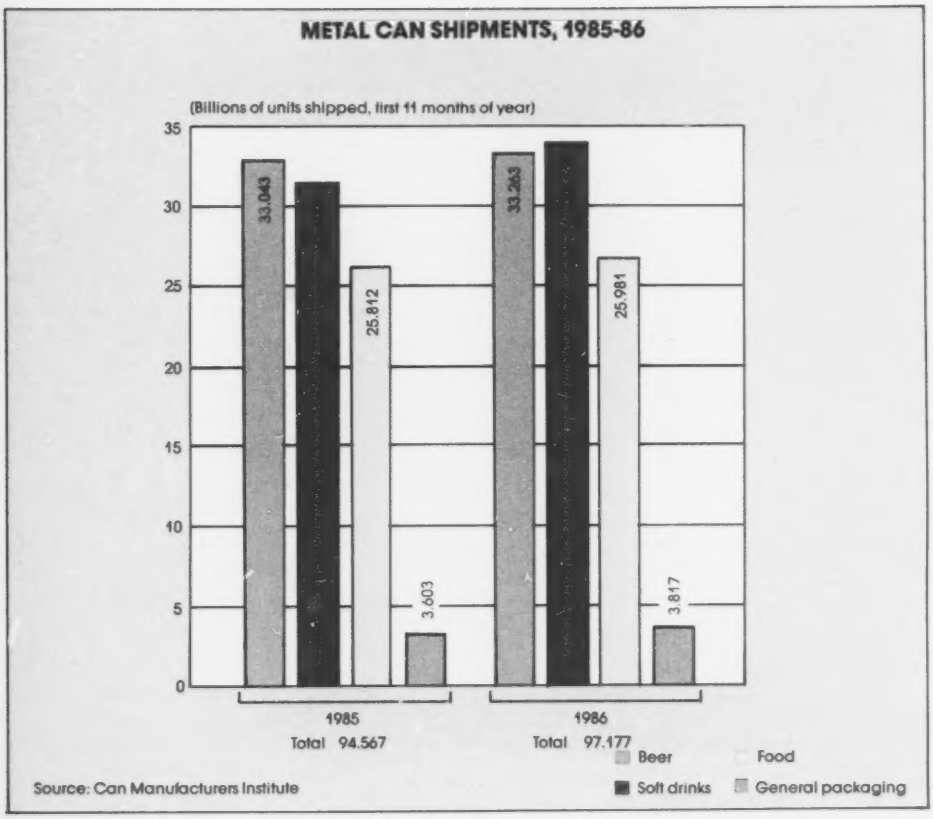
(Total unit shipments as per early 1986 Bure au of the Census, U.S. Dept. of Commerce projections)

Sources: Bureau of the Census, Can Manufacturers Institute and International Trade Administration

GLASS CONTAINER SHIPMENTS, 1985-86



Source: U.S. Department of Commerce, Bureau of the Census ■ Narrow-neck containers ■ Wide-mouth containers



under the IPGR aegis: engineered structures of multilayer glass and high-impact silicate coating that have already demonstrated a major improvement in resistance to breakage.

Regarding metal cans, Blassey projected 1986 shipments of 102.5 billion units vs. an estimated 100.5 billion for 1985 and average annual gains of 1 per cent through 1990. The Can Manufacturers' Institute recently reported a final figure for 1985 of 101.924 billion. CMI's latest figures for 1986 are 97.177 billion units for the first 11 months vs. 94.567 billion for the same period in 1985.

As with glass, Blassey's projection for growth through 1990 could be conservative.

The report sees plastic bottles (blow-molded) as the fastest-growing of rigid containers through 1990 with an average annual growth rate of 4 per cent. Blassey projected a total for 1986 of 18.7 billion units, up from its estimate of 18.1 billion in 1985. As it developed, these numbers were conservative.

The Department of Commerce won't have 1986 totals for plastic bottles until midyear but their final figures for 1985—20.2 billion units—top the Outlook report's estimate for that year by 2.1 billion. This suggests that plastic bottles should do better through 1990 than Blassey's 4 per cent prediction.

The report further noted that beer, food and soft drinks accounted for an estimated 87 per cent of all rigid container shipments in 1986. Increased demand for packaged carbonated soft drinks was the only major growth area.

Blassey cited as a strong growth-slowing force the slowdown in packaged-beer sales caused primarily by market saturation and increasing consumer interest in non-alcoholic beverages. He expects that unit shipments of food containers will decline because of changing consumer requirements and tastes. The remaining markets—household chemicals, toiletries and medicines—are static or growing marginally.

An increase in regulatory activity—in response to increased pressure from consumer groups—also has considerable growth-inhibiting potential for beverage containers.

Solid waste problem

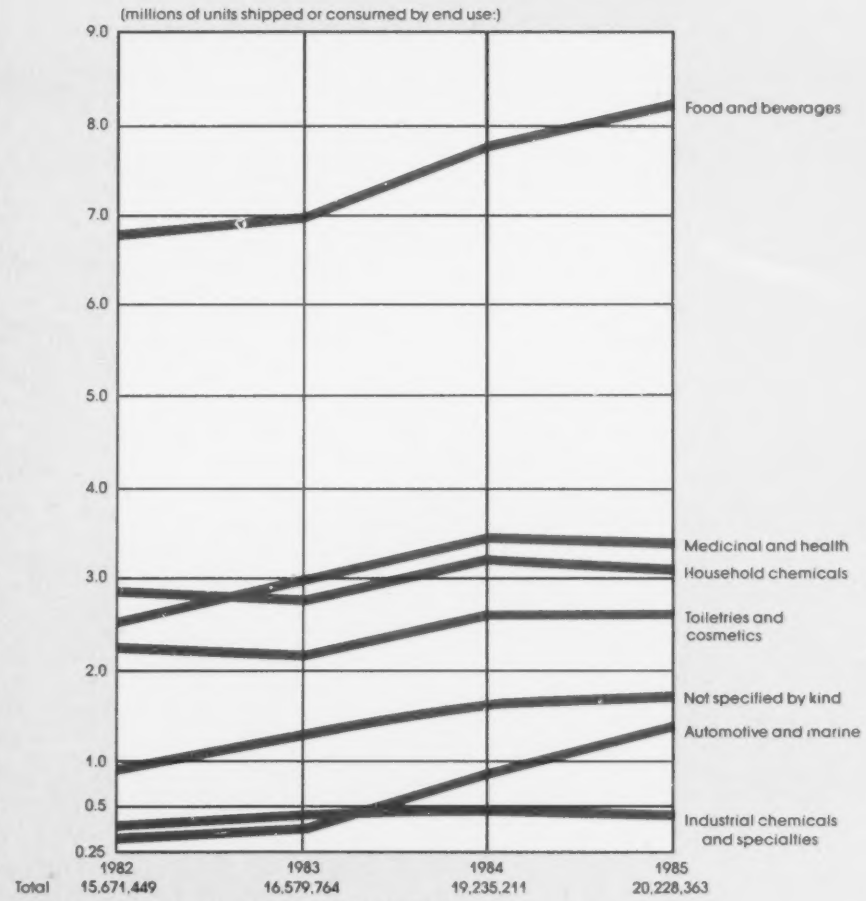
Mandatory deposit laws and growing concern for solid waste problems are a fact of life in several states including such high population states as New York and Michigan.

The scope of recent activity is exemplifed by proposed New Jersey legislation that would require recycling of a wide range of containers, including plastic and bimetal containers. Containers not achieving a 55 per cent recycling rate within 18 months after enactment of the law would be subject to deposit. Douglas Smock, editor of *Plastic World*, observed recently that New Jersey is "almost certain to pass a bill on solid waste this year."

Well-established industry recycling programs for aluminum address part of the problem but as yet there is no comparable effort for steel beverage cans or glass or plastic containers.

Blassey foresees continued market share gains for aluminum cans because of their dominance in beverage packaging. Aluminum can shipments rose from 16.3 billion units in 1975 to 66 billion in 1985 when they accounted for 94 per cent of beverage can shipments and 66 per cent of

PLASTIC BOTTLES (BLOW MOLDED) 1982-85



Revised by 5 per cent or more from previously published figures.
The total represents all blow molded and injection blow molded bottles produced, including produced and shipped as well as consumed.

Source: U.S. Dept. of Commerce, Bureau of the Census and The Society of the Plastics Industry, Inc.

all can shipments. This contrasts with 20 per cent of both categories 10 years earlier when steel dominated the can market.

The report projected a decline in shipments of metal cans for food from 27.1 million units in 1985 to 26.7 units for 1986. Cited as major factors in this trend were reduced preparation of food at home which reflects the continuing trend to smaller families and working mothers. Increased use of frozen convenience foods is also cutting into the market for food cans.

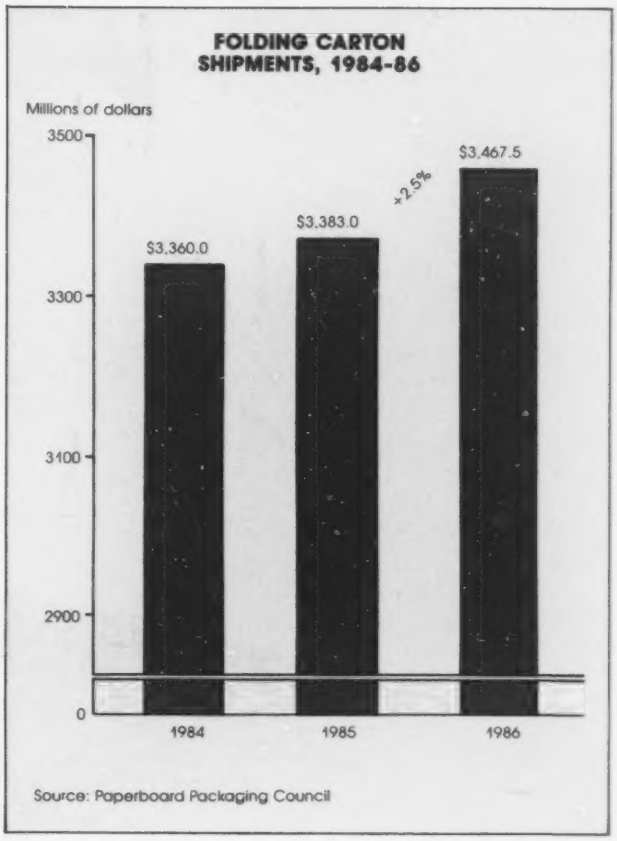
While acknowledging that plastic food containers are a growing challenge, Blassey anticipates that metal cans, mostly steel, will continue to dominate food packaging through 1990.

In Blassey's view, a large problem for glass containers is lowered demand for glass containers by producers of beer, food and soft drinks which combined represent about 86 per cent of total glass container shipments.

The principal factor here is a decline in glass beer bottles caused mostly by the major brewers' preference for aluminum cans. In addition, Blassey noted, large-size glass soft-drink containers have yielded almost totally to the 2- and 3-liter plastic bottle. Beer remains, however, the biggest market for glass containers accounting for more than 32 per cent of 1986 shipments.

In forecasting growth for plastic bottles Blassey contends that the "basic demand factor" for growth is manufacturer efforts to improve the container in two areas: "First, correct decarbonation to expand consumer acceptance of the 1/2-liter soft drink bottle and second, to improve co-extruded and multilayer plastic food containers for better performance at competitive costs." He expects severe price competition to develop between glass and plastic bottles. ■

THE OUTLOOK FOR PAPERBOARD AND CORRUGATED



Source: Paperboard Packaging Council

Corrugated and solid fibre boxes, folding paperboard boxes, rigid (set-up) paperboard boxes and sanitary food containers all experienced growth in 1986. The U.S. Department of Commerce expects growth to continue in all of these areas through 1990.

According to the Fibre Box Association corrugated and fibre boxes set a new all-time high record for shipments in 1986—283.6 billion square feet shipped, 6.0 per cent higher than 1985 shipments.

The Association reported that consumption of paperboard for 1986 was 20,967,607 tons, 5.4 per cent higher than 1985 consumption and also a new record.

On the folding carton front, the Paperboard Packaging Council reported that December, 1986 dollar volume of nearly $314 million was 11.1 per cent better than December, 1985 and set a record for December billings. In the final quarter 1986 was 5.6 per cent better than 1985.

The Council further reported that preliminary indications for all of 1986 would probably reach $3.5 billion, 2.5 per cent better than 1985. Subject to revision in the Council's Marketing Guide, these numbers represent a new record for annual dollar volume of folding carton industry shipments.

With a substantial portion of its members providing data, the 340-member National Paperbox & Packaging Association, mostly independent producers, reported 1986 folding carton sales volume of $382,545,909 vs. the 1985 total of $355,902,110 and rigid box volume of $109,466,500 vs. 1985 figure of $106,065,440.

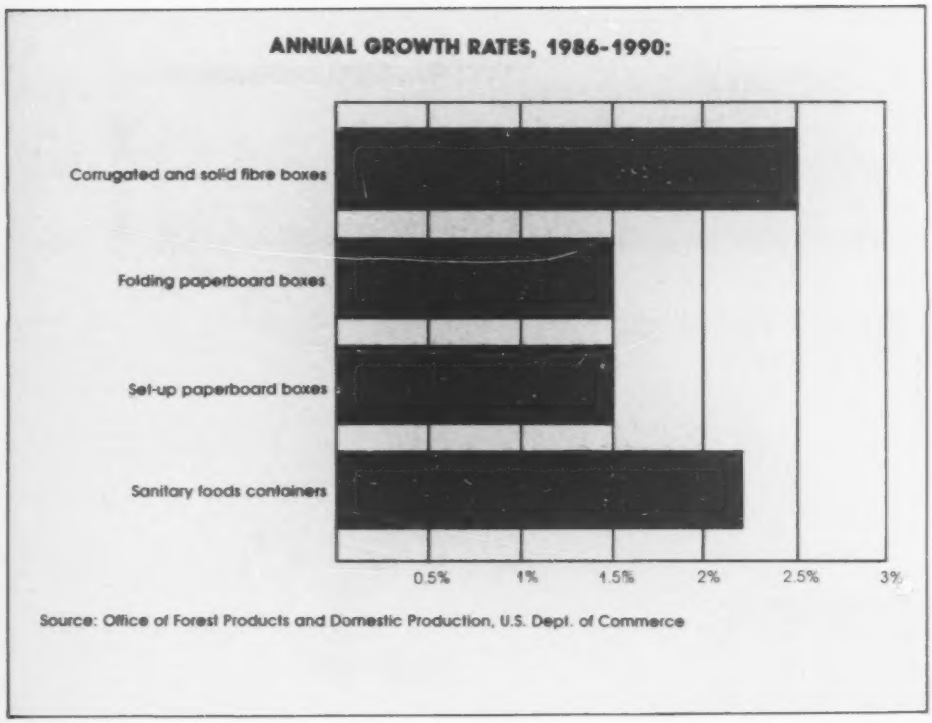
The U.S. Department of Commerce's Office of Forest Products and Domestic Construction 1986 figure for sanitary food containers is 2.2 per cent better than 1985.

These numbers indicate that the Department of Commerce is not overly optimistic in foreseeing continued growth in these areas.

Looking four years down the road in a report in the current edition of its annual U.S. Industrial Outlook, the department sees corrugated and solid fibre boxes as the growth leader with an average annual increase of 2.5 per cent through 1990. The other growth rates: sanitary food containers, 2.2 per cent; folding paperboard boxes, 1.5 per cent; set-up paperboard boxes, 1.5 per cent.

Author Leonard S. Smith of the Commerce Department's Office of Forest Products and Domestic Construction, cites the following as growth factors for corrugated boxes:

1. Continued development of multi-ply box technology.
2. Increased use of flexography in color printing.
3. Further improvements in graphic design.
4. Greater use of preprinted linerboard in box construction.
5. Further computerization and automation of plant operations.
6. Better marketing and distribution methods.
7. Modifications of existing box specifications for com-



pression and burst strength.

8. Improved coatings and adhesives.

9. Increase in the number and variety of corrugated/plastic combinations.

Acknowledging that plastics will continue to make inroads into traditional corrugated markets, Smith predicted that paperboard producers would hold their own by diversifying into new market areas. He expects most of the market growth to be in shipping containers and displays for paper and allied products, miscellaneous plastic materials, glassware and electrical equipment.

Folding paperboard boxes

Smith cites improvement in consumer disposable income and a generally brighter U.S. economy as the principal factors in the 1986 gain for folding paperboard boxes.

In predicting a continuation of this progress through 1990, Smith named these main growth factors: Continuing albeit slow growth in consumer nondurables. A gradual rise in consumer disposable income. Continued moderation of inflation and modest rises in costs of energy, raw materials and labor.

Smith expects the box makers to continue to improve the quality/appearance of their products through better package design and graphics. Also foreseen: Increasing productivity by increasing use of improved equipment for cutting and creasing boxes after printing. Infrared ink-curing to reduce the delay between carton printing and cutting/creasing. Automation and computerization in manufacturing and distribution.

As the trend to greater consumption of single-portion meals continues, it is expected that the industry will increase its presence in packaging for fast food and convenience foods.

Set-up paperboard boxes

Growth in consumer disposable income which encourages purchases of luxury nondurable goods was seen as the main factor behind the 1986 increase for set-up, or rigid, paperboard boxes.

The Department's predicted average annual growth rate of 1.5 per cent for 1986-90 is based on continued albeit slow growth in high-valued nondurable goods in combination with the industry's ability to enter new markets.

The principal markets will be packaging for cosmetics, pharmaceuticals, confectionery and electronics. Competition from plastics and other forms of packaging will continue but set-up boxes are expected to keep their share of the high-value specialty packaging market.

Sanitary food containers

The climb of 2.0 per cent in the real value of sanitary food-container shipments in 1986 more than compensates for the 0.5 per cent decline of 1985. Again, greater consumer spending is a factor.

Smith reported a 1986 increase in sales volume for paperboard carton milk cartons, the gain at the expense of plastic milk containers. He also noted continuing growth for aseptically packaged juices and drinks but not for aseptically packaged flavored milk whose progress is hampered by consumer reluctance to change buying habits and tastes in this area.

The 2.2 per cent average annual growth rate seen for sanitary food containers through 1990 assumes gradual gains in retail food sales and continued growth for fast food and convenience food services.

Also predicted through 1990: Aseptics will continue as an industry growth leader, expanding to different types of packaging systems and to increased diversity of foods and beverages. Ovenable trays will continue to grow albeit at a slower rate than previously anticipated. Plastics will continue to vie vigorously with paperboard in most product areas, including aseptics. ■